SANTA CRUZ BIOTECHNOLOGY, INC.

uPAR siRNA (h): sc-36781

BACKGROUND

Urokinase plasminogen activator receptor (uPAR), also designated CD87, is a glycoprotein I-anchored surface receptor specific for urokinase plasminogen activator (uPA). Upon binding to uPAR, uPA converts the surface bound, large serum β-globulin, plasminogen to plasmin. Plasmin, which is also designated fibrinolysin, is a Trypsin-like enzyme that acts on Arg-Lys bonds and induces pericellular proteolysis in fibrin and fibrinogen, and thereby contributes to the systematic activation of the coagulation cascade. This pathway is observed during re-epithelialization of lesions, wound healing and tissue remodeling. uPA and uPAR are known to be overexpressed in mesenchymal and epithelial origin tumor cells and are required for tumor invasion and metastasis. Ras, MEK, ERK and MLCK function as downstream effectors in the uPAR-dependent signaling cascade, which is initiated by uPA binding, and promotes cellular migration in an integrin selective manner.

REFERENCES

1. Milligan, K.S. 1987. Tissue-type plasminogen activator: a new fibrinolytic agent. Heart Lung 16: 69-74.
2. Roldan, A.L., et al. 1990. Cloning and expression of the receptor for human urokinase plasminogen activator, a central molecule in cell surface, plasmin dependent proteolysis. EMBO J. 9: 467-474.

CHROMOSOMAL LOCATION

Genetic locus: PLAUR (human) mapping to 19q13.31.

PRODUCT

uPAR siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see uPAR shRNA Plasmid (h): sc-36781-SH and uPAR shRNA (h) Lentiviral Particles: sc-36781-V as alternate gene silencing products.

For independent verification of uPAR (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-36781A, sc-36781B and sc-36781C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

uPAR siRNA (h) is recommended for the inhibition of uPAR expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

uPAR (E-3): sc-376494 is recommended as a control antibody for monitoring of uPAR gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor uPAR gene expression knockdown using RT-PCR Primer: uPAR (h)-PR: sc-36781-PR (20 µl, 529 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ahmad, A., et al. 2009. Inactivation of uPA and its receptor uPAR by 3,3'-diindolylmethane (DIM) leads to the inhibition of prostate cancer cell growth and migration. J. Cell. Biochem. 107: 516-527.
2. Schmaier, A.H., et al. 2010. Factor XII: new life for an old protein. Thromb. Haemost. 104: 915-918.
3. Wang, L., et al. 2012. Degradation of internalized $\alpha_v\beta_5$ integrin is controlled by uPAR bound uPA: effect on β1 integrin activity and α-SMA stress fiber assembly. PLoS ONE 7: e33915.
4. Wang, F., et al. 2012. Design, synthesis, biochemical studies, cellular characterization, and structure-based computational studies of small molecules targeting the urokinase receptor. Bioorg. Med. Chem. 20: 4760-4773.
5. Sehrawat, A., et al. 2013. Suppression of FOXQ1 in benzyl isothiocyanate-mediated inhibition of epithelial-mesenchymal transition in human breast cancer cells. Carcinogenesis 34: 864-873.
6. Montuori, N., et al. 2013. uPAR regulates pericellular proteolysis through a mechanism involving integrins and fMLF-receptors. Thromb. Haemost. 109: 309-318.
7. Yue, J., et al. 2017. MicroRNA-335-5p plays dual roles in periapical lesions by complex regulation pathways. J. Endod. 43: 1323-1328.

RESEARCH USE

For research use only, not for use in diagnostic procedures.